

4.3

Summer Work



TEKS / TAKS

6(12)B* Evaluate the effectiveness of different representations to communicate ideas.

6(13)A Make conjectures from sets of examples.

* not tested on TAKS

In Problems 4.1 and 4.2, you developed ways of thinking about and solving division problems involving a whole number and a fraction. In the next problem, the questions involve division of a fraction by another fraction.

Problem 4.3 Dividing a Fraction by a Fraction

Rasheed and Ananda have summer jobs at a ribbon company. Answer the questions below. Use written explanations or diagrams in each to show your reasoning. Write a number sentence to show your calculation(s).

- A.** Rasheed takes a customer order for ribbon badges. It takes $\frac{1}{6}$ yard to make a ribbon for a badge. How many ribbon badges can he make from the given amounts of ribbon? Describe what each fractional part of an answer means.

1. $\frac{1}{2}$ yard

2. $\frac{3}{4}$ yard

3. $2\frac{2}{3}$ yards (Remember $2\frac{2}{3} = \frac{8}{3}$.)



- B.** Ananda is working on an order for bows. She uses $\frac{2}{3}$ yard of ribbon to make one bow. How many bows can Ananda make from each of the following amounts of ribbon?
1. $\frac{4}{5}$ yard
 2. $1\frac{3}{4}$ yards
 3. $2\frac{1}{3}$ yards
- C.** Solve each of the following examples as if they were ribbon problems.
1. $\frac{3}{4} \div \frac{2}{3}$
 2. $1\frac{3}{4} \div \frac{1}{2}$
 3. $2\frac{3}{4} \div \frac{3}{4}$
- D.** What algorithm makes sense for dividing any fraction by any fraction?
- E.** To solve $\frac{3}{4} \div \frac{2}{5}$, Elisha writes, “ $\frac{3}{4} \div \frac{2}{5}$ is the same as $\frac{15}{20} \div \frac{8}{20}$. So the answer to $\frac{3}{4} \div \frac{2}{5}$ is the same as $15 \div 8$.”
1. Is Elisha’s first claim, that $\frac{3}{4} \div \frac{2}{5}$ is the same as $\frac{15}{20} \div \frac{8}{20}$, correct?
 2. Is his second claim, that the answer to $\frac{3}{4} \div \frac{2}{5}$ is the same as $15 \div 8$, correct?
 3. Use Elisha’s method to solve $\frac{3}{5} \div \frac{1}{3}$. Does the method give a correct solution?

ACE Homework starts on page 55.

4.4

Writing a Division Algorithm



TEKS / TAKS

6(13)A Make conjectures from sets of examples.

6(13)B Validate conclusions using mathematical relationships.

You are ready now to develop an algorithm for dividing fractions. To get started, you will break division problems into categories and write steps for each kind of problem. Then you can see whether there is one “big” algorithm that will solve them all.